

Titles

Analemmas of the Planets, The, *David A. Harvey*, 237
Archaeoastronomers Convene in Oxford, *Owen Gingerich*, 7
Astronomy and Federal Spending, *Leif J. Robinson*, 343
Astronomy in New Zealand, *Graham L. Blow*, 555
Astronomy in the Next Decade, *Ronald A. Schorn*, 339
Astronomy with Salyut 6, *Valery Lutskiy*, 33
Bit of Porcelain, A, *R. Newton Mayall*, 16
Bubbles from Dying Stars, *James B. Kaler*, 129
Charting the Moons of Saturn — II, 35
Columbia's Troubled Reprise, *Andrew Chaikin*, 118
Comet in a Million, A, *Daniel W. E. Green* and *Brian G. Marsden*, 366
Disquieting Sun, The: How Big, How Steady? *Leif J. Robinson*, 354
Dust Clouds of Sagittarius, *David F. Malin*, 254
Eclectic Astronomer, An, *Keith Sugden*, 27
Encore, *Columbia*, 30
Eye for Tomorrow, An, *Leif J. Robinson*, 128
Festival of Planets, A, 564
Gamma-Ray Burst Puzzle, *Ronald A. Schorn*, 560

GEODSS Difference, The, *J. Kelly Beatty*, 469
Geoffrey Chaucer: Amateur Astronomer? *Tom Carter*, 246
Graphic Ephemeris 1982 — The Night Sky at a Glance, *Michael Jay Jones*, 55
Laboratory Exercises in Astronomy — Quasars, *Darrel B. Hoff*, 20
Lick Observatory's Chile Station, *Remington P. S. Stone*, 446
Local System of Stars, The, *William Herbst*, 574
Look at Some Unstable Stars, A, *David F. Malin*, 22
Mystery of Epsilon Aurigae, The, *Francis J. Reddy*, 460
NASA and the Selling of Space Science, *J. Kelly Beatty*, 243
Not with a Bang but a Whimper, *Sun Kwok*, 449
Our Turn at Kitt Peak, *Russell Genet*, *Kenneth Kissell*, and *George Roberts*, 240
Pieces of the Sky, *Andrew Chaikin*, 344
Radio Maps of the Sky, *Glyn Haslam*, *Richard Wielebinski*, and *Wolfgang Priester*, 230
Report from a Torrid Planet, *J. Kelly Beatty*, 452

Rescuing "Solar Max," 236
Salyut 6: Milestone Mission, 32
SAR Imaging: Seeing the Unseen, *Michael Kobrick*, 139
SCI Chart as a Celestial Cylinder, The, *Don L. Manley*, 463
SETI Conference at Tallinn, *Woodruff T. Sullivan*, III, 350
Stellar Interferometry: A Widening Frontier, *Antoine Labeyrie*, 334
STS-3: Science Rides the Shuttle, *J. Kelly Beatty*, 571
Sunspot Maximum Corona, A, *R. R. Fisher*, 18
Tycho Country in Scandinavia, *Duncan Steel* and *Margareta Seb-Ölsson*, 233
Unscrambling the Local Supercluster, *R. Brent Tully*, 550
Unveiling Venus with VOIR, *Warren James*, 141
Venus: The Mystery Continues, *J. Kelly Beatty*, 134
Voice of Astronomical History, The, *Spencer R. Weart* and *David H. DeVorkin*, 124
Where Did the 1780 Eclipse Go? *Robert F. Rothschild*, 558

Authors

Akasofu, S.-I., book review, 368
Armitage, Henry G., Jr., M.D., letter, 117
Beatty, J. Kelly, GEODSS Difference, The, 469
NASA and the Selling of Space Science, 243
Report from a Torrid Planet, 452
STS-3: Science Rides the Shuttle, 571
Venus: The Mystery Continues, 134
Bennett, Christopher A., letter, 229
Bergquist, Russell R., letter, 549
Bishop, Roy L., letter, 253
Blow, Graham L., Astronomy in New Zealand, 555
Bortle, John E., Comet Digest, 98, 215, 315, 427, 532, 634
letter, 5
Bowen, Keith P., Contact Lenses and Testing, 88
Briggs, John W., letters, 117, 229
Britton, Tom, A Guiding Reticule Illuminated by Starlight, 200
Brooks, Edward M., book reviews, 40, 158
Brunner, Alan N., letter, 5
Burbridge, Geoffrey, letter, 117
Carter, Tom, Geoffrey Chaucer: Amateur Astronomer? 246
Chaikin, Andrew, book review, 581
Columbia's Troubled Reprise, 118
Pieces of the Sky, 344
Christen, Roland, Revised Triplet Design, 411
Church, John A., Optical Designs of Some Famous Refractors, 302
Cohen, Martin, book review, 265
Cornell, James, letter, 549
DeVorkin, David H., see Weart, Spencer R.
Dunham, David W., Occultation Highlights for the Year 1982, 99
Occultation Notes, 604
Planetary Occultations of Stars in 1982, 62
Dutch, Steven, letter, 5
Dvorak, Ed, letter, 117
Dyck, Gerald P., letter, 445
Edberg, Stephen J., Exploring the Stars with a Spectrograph, 311
letter, 5
Ferrin, Ignacio, and Edgar Guzman, letter, 459
Fisher, R. R., A Sunspot Maximum Corona, 18
Fitzgerald, Burton L., The Alvan Clark 48-inch Optical Flat, 85
Flodqvist, Göte, letter, 253

Fountain, Patrick, The Advantages of a Slow Worm, 407
Gehrels, Tom, see Goldberg, Leo
Gehr, Robert D., book review, 47
Genet, Russell, Kenneth Kissell, and George Roberts, Our Turn at Kitt Peak, 240
George, Alvin D., public observatory report, 185
Ghazni, S., amateur activity report, 510
Gingerich, Owen, Archaeoastronomers Convene in Oxford, 7
Astronomical Scrapbook, 358, 465
letter, 563
Goldberg, Leo, and Tom Gehrels, letter, 445
Grant, James T., letter, 333
Green, Daniel W. E., and Brian G. Marsden, A Comet in a Million, 366
Gregory, John, Notes About Equal-Radius Schmidt-Cassegrains, 88
Guzman, Edgar, see Ferrin, Ignacio
Hall, John S., letter, 563
Harger, Ronald, Biscuit Cutters from Steel Water Pipe, 89
Harris, Alan, letter, 459
Harvey, David A., The Analemmas of the Planets, 237
Haslam, Glyn, Richard Wielebinski, and Wolfgang Priester, Radio Maps of the Sky, 230
Hedervari, Peter, amateur activity report, 511
Herbst, William, The Local System of Stars, 574
Hewitt-Whits, Kenneth, book review, 373
Hoff, Darrel B., book review, 480
Laboratory Exercises in Astronomy — Quasars, 20
Holleran, Robert T., Surface Profiles from the Foucault Test, 519
Houston, Walter Scott, Deep-Sky Wonders, 95, 211, 316, 428, 529, 632
James, Warren, Unveiling Venus with VOIR, 141
Jefferies, John T., letter, 549
Jones, Michael Jay, Graphic Ephemeris 1982 — The Night Sky at a Glance, 55
Kaler, James B., Bubbles from Dying Stars, 129
Kamoun, Paul G., letter, 253
Kissell, Kenneth, see Genet, Russell
Kluepfel, Charles, letter, 333
Knight, Jesse W., Monitoring the Aurora Electronically, 635
Kobrick, Michael, SAR Imaging: Seeing the Unseen, 139

Kraus, John, letter, 5
Kwok, Sun, Not with a Bang but a Whimper, 449
Labeyrie, Antoine, Stellar Interferometry: A Widening Frontier, 334
Lang, Kenneth R., book review, 264
Lestrade, John Patrick, book review, 156
Levy, David, A House of Telescopes, 401
Lind, Paul U., A Steel-Ball Drive for Small Cameras, 198
LoGuirato, June, letter, 333
Lombard, Jon, book review, 579
Lopez, Victor, letter, 229
Lovi, George, Rambling Through... (current month) Skies, 53, 167, 275, 383, 491, 593
Lutskiy, Valery, Astronomy with Salyut 6, 33
Malin, David F., A Look at Some Unstable Stars, 22
Dust Clouds of Sagittarius, 254
Manley, Don L., The SCI Chart as a Celestial Cylinder, 463
Marshall, Laurence A., book review, 580
Marsden, Brian G., see Green, Daniel W. E.
Marshall, Kevin Patrick, amateur activity report, 511
Martyus, Cedrick R., M.D., An English Amateur's Schmidt Camera, 208
Mayall, R. Newton, A Bit of Porcelain, 16
Mayenschein, Joseph, Restoring Old Tubes, 625
McCarty, Joe, Drawing Setting Circles by Computer, 411
Meadows, Jim, letter, 549
Meus, Jean, book review, 372
letters, 5, 117
Menke, David H., public observatory report, 186
Michael, Michael A. G., book review, 476
Mihalas, Dimitri, book review, 262
Moyer, Gordon, letter, 229
Mulholland, J. Derral, book review, 261
Naylor, Rosemary, amateur activity report, 509
Oliver, Bernard M., book review, 155
O'Meara, Stephen J., amateur convention report, 73
Inside Boston's Hayden Planetarium, 293
Land of the Long White Cloud, "The, 612
Page, Thornton, book review, 154
letter, 333
Panscechi, Luigi, amateur activity report, 509
Parker, Donald C., letter, 549
Pershey, Edward Jay, letter, 445
Pilcher, Carl B., book review, 42

Priester, Wolfgang, see Haslam, Glyn
 Pruckmayr, G., letter, 6
 Rao, Joe, letter, 333
 Rea, Donald G., letter, 563
 Reddy, Francis J., The Mystery of Epsilon Aurigae, 460
 Roberts, George, see Genet, Russell
 Robinson, Leif J., Astronomy and Federal Spending, 343
 book review, 369
 Disquieting Sun, The: How Big, How Steady? 354
 Eye for Tomorrow, An, 128
 Rothschild, Robert F., Where Did the 1780 Eclipse Go? 558
 Rubin, Vera C., book review, 478
 Schilling, Govert, amateur activity report, 510
 Schmah, E. J., letter, 333
 Schorn, Ronald A., Astronomy in the Next Decade, 339
 Gamma-Ray Burst Puzzle, The, 560

Schur, Chris, Experiments with All-Sky Photography, 621
 Seb-Olsson, Margareta, see Steel, Duncan
 Shipman, Harry L., book review, 44
 Sinnott, Roger W., conductor, Gleanings for ATM's, 85, 198, 302, 407, 519, 621
 Measuring the Earth's Shadow, 314
 Smith, Ron Paul, More on Pinhole Light Sources, 89
 Steel, Duncan, and Margareta Seb-Olsson, Tycho Country in Scandinavia, 233
 Stone, Remington P. S., Lick Observatory's Chile Station, 446
 Sugden, Keith, An Eclectic Astronomer, 27
 Sullivan, Woodruff T., III, SETI Conference at Tallinn, 350
 Szczepanski, Frank, An Observer Comments, 412
 Tang Wai Man, amateur activity report, 510
 Tanner, Ralph L., Night Viewer for Star Charts, 626
 Tichenor, Clyde L., Observing with a TV Camera, 533

Tully, R. B., Unscrambling the Local Supercluster, 550
 Tuttle, Seth L., letter, 563
 Vervie, Chris, amateur activity report, 509
 Victor, Robert C., Sun, Moon, and Planets This Month, 60, 170, 278, 306, 494, 600
 Vorontsov-Velyaminov, B., letter, 459
 Warren, Wayne H., Jr., letter, 229
 Watts, Raymond N., Jr., book review, 373
 Weart, Spencer R., and David H. DeVorkin, The Voice of Astronomical History, 124
 Weissman, Paul, More on the Christen Lens, 201
 Whitaker, Ewen A., letter, 229
 Whitmore, Bradley C., book review, 153
 Wielebinski, Richard, see Haslam, Glyn
 Wile, David S., Evolution of an 8-inch Newtonian, 523
 Wilkinson, R. H., letter, 459
 Williams, Tom, amateur convention report, 74
 Worley, Charles E., book review, 475
 Zeljko, Andreic, Driving a Telescope with a Wire Cable, 199

Departments and Features

Amateur Astronomers —

Amateur Briefs, 187
 Astronomy Worldwide, 509
 House of Telescopes, A, 401
 Inside Boston's Hayden Planetarium, 293
 Land of the Long White Cloud, "The, 612
 Three Upcoming Meetings, 295
 Two Memorable Conventions, 73
 Two New Public Observatories, 185

Astronomical Scrapbook —

Astrolabe from Lahore, An, 358
 Fake Astrolabes, 465

Books and the Sky —

Astronomy Through the Telescope, Richard Learner, 369
 Computational Spherical Astronomy, Laurence G. Taff, 372
 Contemporary Astronomy, Jay M. Pasachoff, 156
 Cosmology: The Science of the Universe, Edward R. Harrison, 580
 Encyclopedia of Physics, Rita G. Lerner and George L. Trigg, editors, 264
 Fertile Stars, The, Brian O'Leary, 373
 Field Guide to the Atmosphere, A, Vincent J. Schaefer and John A. Day, 158
 Grand Tour, The, Ron Miller and William K. Hartmann, 579
 Illustrated Encyclopedia of Space Technology, The, Kenneth Gatland and others, 476
 Infrared Astronomy, C. G. Wynn-Williams and D. P. Cruikshank, editors, 265
 In Quest of Telescopes, Martin Cohen, 47
 Majestic Lights, Robert H. Eather, 368
 New Solar System, The, J. Kelly Beatty, Brian O'Leary, and Andrew Chaikin, editors, 42
 Observing Visual Double Stars, Paul Couteau, 475
 Our Cosmic Universe, John Kraus, November, 1981; correction to, 5
 Physics-Astronomy Frontier, The, Fred Hoyle and Jayant Narlikar, 44
 Planets, The, Peter Francis, 581
 Practical Astronomer, The, Colin A. Ronan, 480
 Rainbows, Halos, and Glories, Robert Greenler, 40
 Red Star in Orbit, James E. Oberg, 154
 Revised Shapley-Ames Catalog of Bright Galaxies, A, Allan Sandage and G. A. Tammann, 478
 Sky Atlas 2000.0: Deluxe Edition, Wil Tirion, 373
 Skywatchers of Ancient Mexico, Anthony F. Aveni, 261
 Strategies for the Search for Life in the Universe, Michael D. Papagiannis, editor, 155
 Structure and Evolution of Normal Galaxies, The, S. M. Fall and D. Lynden-Bell, editors, 153
 Sun as a Star, The, Stuart Jordan, editor, 262
 Universe, Don Dixon, 579

Celestial Calendar —

Astronomy Day, 390
 "Big Three" Asteroids Arrive, The, 496
 January Lunar Eclipse, 66
 Mars' Springtime Opposition, 280
 May Meteors, 498

Minima of Algol, 66, 175, 282, 390, 498, 605
 Observing July's Total Lunar Eclipse, 602
 Occultation Notes, 604
 Planetary Occultations of Stars in 1982, 62
 Springtime Observing Challenges, 388
 This Winter's Visit by Minor Planet Eros, 173
 Tracking the Three Outer Planets, 65 (correction, 253)
 Variable Star Maxima, 66, 174, 282, 390, 498, 605
 Venus in 1982, 175

50 and 25 Years Ago, 152, 253, 365, 458, 563

Front-cover photographs —

Aurora over Finland, 545
 Avant-garde French Observatory, 329
 Columbia Begins Second Mission, 113
 French Revolutionary Sundial, 1
 GEODSS Telescopes on Patrol, 441
 Splendor in Sagittarius, 225

Gleanings for ATM's —

Advantages of a Slow Worm, The, 407
 Alvan Clark 48-inch Optical Flat, The, 85
 Biscuit Cutters from Steel Water Pipe, 89
 Chester J. Silvernail, 624
 Contact Lenses and Testing, 88
 Drawing Setting Circles by Computer, 411
 Driving a Telescope with a Wire Cable, 199
 Evolution of an 8-inch Newtonian, 523
 Experiments with All-Sky Photography, 621
 Guiding Reticle Illuminated by Starlight, A, 200
 More on Pinhole Light Sources, 89
 More on the Christen Lens, 201
 Night Viewer for Star Charts, 626
 Notes About Equal-Radii Schmidt-Cassegrains, 88
 Observer Comments, An, 412
 Optical Designs of Some Famous Refractors, 302
 Restoring Old Tubes, 625
 Revised Triplet Design, 411
 Steel-Ball Drive for Small Cameras, A, 198
 Surface Profiles from the Foucault Test, 519
 To Tighten a Mounting, 201

Letters, 5, 117, 229, 333, 445, 549

New Books Received, 49, 159, 266, 374, 481, 583

News Notes —

AAS Resolutions, 454
 Adalberto Does Not Exist, 455
 Antiprotons in Cosmic Radiation, 147
 Bok Prize Winners, 567
 Chasing Jupiter's Rings, 10 (correction, 365)
 Chinese Participation in VLBI Experiment, 455
 Close Encounters in Space, 570
 Clusters Rich in Binary Galaxies, 568
 Cosmic Soup Kitchen, 455
 DPS To Meet in October, 567
 Early Chinese Star List, 570
 Earth-Based Photograph of Jupiter's Ring, 568
 Elusive X-Ray Sources, 456
 Far-Out Giant Molecular Clouds, 147
 Finding a Nebular Powerhouse, 148
 First Detection of Stars in a Quasar, The, 567
 First Protostar Found in Neighboring Galaxy, 458

First Spacelab Arrives at Kennedy Space Center, 250
 FK Comae Stars: Coalesced Binaries? 15
 4U 1915—05: A Binary X-Ray Burst at Last? 150
 Galilean Satellites 2,000 Years Before Galileo, The, 145
 Guide to Palomar Sky Survey, 454
 HD 15558: A Very Bright, Very Hot Binary Star, 363
 Hearts of Globular Clusters, 457
 Hottest Plasma? The, 148
 HR Delphinus' Expanding Shell, 364
 H II-Regionlike Galaxies and Their Relatives I: NGC 2976, 10; II: H II Systems, 11; III: Oops! 11
 Interstellar Rubidium, 363
 Io's Plasma Torus Revisited, 12
 Just How Big Is M101? 150
 Landsat Imagery: 1,000,000 and Counting, 456
 Life and Times of the Oort Comet Cloud, The, 149
 Linking Our Astronomical and Climatic Pasts, 12
 Listening to the Solar System I: Radar Echoes from Asteroids, 13; II: Radar Detection of P/Encke's Nucleus, 13 (correction, 253)
 MacArthur Awards, 14
 Markarian 335: An Extraordinary Seyfert Galaxy, 251
 Mass of M31, The, 148
 Mass of the Crab's Progenitor Star, The, 15
 Monogem Ring, The: An X-Ray Doughnut, 145
 Moon Rocks and Meteorites Compared, 363
 NASA's Astronomical Publications, 148
 New Apollo Asteroid, 455
 New Detail from NGC 604, 365
 New Look at the Night Sky, A, 248
 NGC 7252, a Dichotomous Galaxy, 570
 Northern Lights at a Glance, The, 152
 No Time Warp in 1984, 569
 Pioneer 10: 25 A.U. and Beyond, 250
 Possible Yucatan Impact Basin, 249
 Pulsar Giant Glitches, 567
 Quasar 1525 + 227, The: More Evidence for Beaming? 365
 Saturn's Growing Family, 458
 Seasat Results: Seasonal Averages, 361
 September's Extraordinary Sunspot Group, 12
 Short-Lived Nebula, A, 364
 South Pole Auroral Station, 454
 Space Telescope Center in Europe, 145
 Split Comet, A, 364
 Star-Burst Nucleus of NGC 7714, The, 148
 Superthin Galaxies, 252
 Tipler vs. Sagan? 566
 Tunguska Meteorite and Atmospheric Ozone, The, 14
 Ultraviolet Close-up of the Orion Nebula, 566
 Unusual Apparitions of Old Comets, 566
 Upcoming Saturn Conference, 10
 UX Ursae Majoris: A Violent Ultraviolet Spectrum Variable, 248
 Venera Launches, 15
 Very-High-Velocity H I Clouds: Are They Magellanic Material? 146
 Visions of Einstein, 362

Voyager Status, 252
 Voyager 2 Ready for Saturn, August, 1981; correction to, 365

Observer's Page —

Comet Digest, 98, 215, 315, 427, 532, 634
 Deep-Sky Wonders, 95, 211, 316, 428, 529, 632
 English Amateur's Schmidt Camera, An, 208
 Eros Crosses NGC 1647, 528
 Exploring the Stars with a Spectrograph, 311

Measuring the Earth's Shadow, 314
 Monitoring the Aurora Electronically, 635
 1982's Lunar Eclipses: Round 1, 423
 Observing with a TV Camera, 533
 Occultation Highlights for the Year 1982, 99
 Polarized Corona in Color, The, 210
 Sunspot Numbers, 97, 215, 317, 430, 531, 638
 Venus Occults Nunki, 207

Rambling Through... (current month) Skies, 53, 167,

275, 383, 491, 593
 Southern Stars, 166, 382, 592
 Stars for... (current month), 54, 168, 276, 384, 492, 594
 Sun, Moon, and Planets This Month, 60, 170, 278, 386, 494, 600
 Jupiter's Satellites, 61, 171, 279, 387, 495, 601
 Moon Phases and Distances, 61, 171, 279, 387, 495, 601

Selected Topics and Celestial Objects

This listing is not intended to be exhaustive and does not supplant the other parts of the index. For example, material in such regular features as Books and the Sky is ordinarily indexed only under the Departments and Features section.

Amateur astronomers: AAVSO fall convention, 74;
 AstroCon-81, 73; Bok prize winners, 567; Chaucer as an amateur, 246; Levy's house of telescopes, 401; New Zealand, 555, 612; observing at Kitt Peak, 240; public observatories, 185; worldwide activities, 509
 Archaeoastronomy: Oxford convention on, 7
 Artificial satellites: see Space and spacecraft
 Asteroids: Eros crossing NGC 1647, 528; Eros near M76, 173, 459; extinction of dinosaurs by, 249; Hermes, 389; radar echoes from, 13; 330 Adalberta, 455; 1982 DB, 455
 Astrolabes: Chaucer's, 247; fake, 358, 465
 Astronomical funding: and federal spending, 343, 560
 Astronomical publications: NASA's, 148
 Atlases: night viewer for star charts, 626; Palomar Sky Survey guide, 454; SCI chart as a celestial cylinder, 463
 Atmosphere: measurements of airglow, 248; Tunguska meteorite and ozone, 14
 Auroras: Antarctic auroral station, 454; electronic aurora monitor, 635; Church's "Aurora Borealis," 368; January 21, 1839, Norwegian aurora, 369; northern lights from space, 152
 Clusters: central resolution of globular, 457. Globular — 47 Tucanae, 457; M30, 457; NGC 1851, 96; NGC 6229, 632; NGC 6397, 457. Open — Pleiades, 209; M41, 212; NGC 2158, 317; NGC 2236, 213; NGC 2354, 213; NGC 2362, 213; NGC 2420, 317; NGC 6520, 256
 Comets: Halley's return, 5, 98; P/Giacobini-Zinner, 253; meteors from P/Grigg-Skjellerup, 388; Oort cloud, 149; P/Encke's nucleus, 13, 459; unusual apparitions of old, 566; Great 1861 II, 634; Seki-Lines 1962 III, 315; Bowell 1980b, 98, 215, 315, 366, 427, 532, 634; P/Swift-Gehrels 1981j, 215, 532; P/Grigg-Skjellerup 1982a, 98, 427, 634; P/du Toit-Hartley 1982b and 1982c, 364, 455
 Conjunctions: planets "aligned," 5, 229, 549, 564
 Constellation study: early Chinese star list, 570
 Cosmic rays: antiprotons in, 147; Cornell experiment, 5
 Earth: Landsat imagery, 456; Mount St. Helens, 43
 Eclipses: longest totality at solar, 5; October 27, 1780, total solar, 558; crater timings at July 16-17, 1981, lunar, 314; July, 31, 1981, total solar, 253; January 9, 1982, total lunar, 423; track of July 11, 1991, solar, 333
 Education: course on use of Space Telescope for astronomical problems, 333; laboratory exercise on quasars, 20
 Future: astronomy in the next decade, 339
 Galaxies: Abell 667, 569; Abell 2244, 569; binary, in clusters, 568; central region of M31, 362; dichotomy of NGC 7252, 570; distribution of, 478; first protostar found in Large Magellanic Cloud, 458; H II-regionlike, 10, 11; local supercluster of, 550; Markarian 335 as an extraordinary Seyfert, 251; mass of M31, 148; size of M101, 150; starburst nucleus of NGC 7714, 148; superthin, 252; Virgo cluster of, 362; visibility through planetary nebulae, 459; IC 473, 211; IC 2233, 253; M31, 153, 535; M49, 632; M64, 497; M65, 428; M66, 428; M101, 150; NGC 1792, 95; NGC 1808, 96; NGC 1964, 95; NGC 2090, 97; NGC 2207, 212; NGC 2217, 211, 212; NGC 2223, 212; NGC 2280, 212; NGC 2283, 212; NGC 2325, 212; NGC 2402, 211; NGC 2433, 211; NGC 2781, 430; NGC 2974, 429; NGC 2976, 11; NGC 3165, 428; NGC 3166, 428; NGC 3169, 428; NGC 3294, 430; NGC 3628, 429;

NGC 3810, 429; NGC 3900, 529; NGC 3902, 530; NGC 3911, 530; NGC 3912, 530; NGC 3941, 530; NGC 4085, 530; NGC 4088, 529, 530; NGC 4102, 531; NGC 4111, 531; NGC 4293, 531; NGC 4526, 632; NGC 4535, 632; NGC 4861, 12; NGC 6181, 632; NGC 7252, 570; UGC 4943, 252; UGC 7321, 253; II Zw 40, 11
 Gamma-ray astronomy: bursters, 560
 History: Chaucer as an amateur astronomer, 246; comment on modern sources, 333; comment on Moon Hoax, 229; C. S. Lewis and Mars, 333; early days of interferometry, 338; inaccuracies in Oppolzer's eclipse paths, 333; Jupiter satellite observations before Galileo, 145; life of Admiral Smyth, 27, 229; Sadler-Smyth scandal, 29; Tycho Brahe in Scandinavia, 233
 Jupiter: comment on magnetotail, 365; Earth-based photograph of ring, 568; Io's plasma torus, 12; satellite observations before Galileo, 145
 Life: extraterrestrial, 350, 549, 566
 Mars: comment on useful observations of, 549; C. S. Lewis and, 333; Viking I views of, 363
 Meteorites: Antarctic and lunar samples at Johnson Space Center, 344; etching, 6; Tunguska and Earth's ozone, 14; Yucatan impact basin, 249
 Meteors: from Periodic Comet Grigg-Skjellerup, 388
 Molecular clouds: giant, 147; high velocity H I as Magellanic material, 146; H II region around S146, 148; H II region NGC 604 and hot Wolf-Rayet stars, 365
 Moon: lunar samples and customs procedures, 349; Moon rocks compared to Earth meteorites, 344, 363
 Nebulae: Abell 30, 131; Abell 35, 133; Abell 39, 132; Abell 75, 131; around BD -22°3467, 133; Barnard 86, 256; dust clouds of Sagittarius, 254; from dying stars, 129; "Kiss," 187; nebulousity near V1057 Cygni, 364; visibility of galaxies through planetary, 459. Diffuse — hourglass, 254; IC 1274-5, 259; IC 2220, 26; M8, 254, 257; M20, 258; M42-43, 209, 566; NGC 6559, 259. Planetary — IC 418, 95; IC 2165, 212; IC 2189(?), 211; J900, 316; M57, 407, 633; NGC 2371-2, 317; NGC 2392, 317; NGC 2474-5, 132; NGC 6164-65, 25; NGC 6210, 632; NGC 6543, 317; NGC 7027, 450
 Novae and supernovae: Cassiopeia A supernova remnant, 362; T Coronae Borealis, 388; HR Delphini, 364
 Observatories: Anglo-Australian, 255; Antarctic auroral station, 454; Bedford, 28; Black Birch, 555; Carter, 555; CERGA, 334; Europe's Space Telescope Center, 145; Hartwell, 29; Hermonseeux Castle, 509; Kitt Peak, 117, 240; Kumeu, 557; Lick's Chile station, 446; Mauna Kea, 549; Royal Greenwich, 371; Sacramento Peak, 560; Stjerneborg, 234
 Observatories, amateur and public: Ashcroft, 186; Pettinger-Guiley, 185
 Occultations: Venus occults Sigma Sagittarii, 207
 Personal notes: Barney, I., 560; Dunham, D., 229; Foster, D., 446; Mills, D., 446; Pingree, D., 14; Silvernail, C., 624; Taylor, J., 14
 Photography: all-sky camera, 621
 Planetariums: Boston's Hayden, 293
 Pulsars: rotational glitches, 567
 Quasars: detection of stars in, 567; B234, 12; B272, 11; 3C 48, 567; 3C 273, 20, 21; 1525 + 227, 365
 Radar astronomy: and asteroids, 13; detection of P/Encke's nucleus, 13; synthetic aperture, 139

Radio astronomy: Chinese-West German VLBI experiment, 455; maps of the sky, 230
 Saturn: charting moons of, 35; conference on, 10; new satellites of, 458; plasma ring, 148
 Societies: AAS, 454
 Space and spacecraft: Atmosphere Explorer, 248; Columbia Space Shuttle, 30, 118, 476, 571; Dynamic Explorer 1, 152; European Space Agency's Space-lab, 250; HEAO 2 *Visions of Einstein* slide set, 362, 549; increased orbital litter, 570; Landsat imagery, 456; Pioneer 10, 250; Salyut 6, 32, 33; Seasat results, 361; Solar Maximum Mission, 236; status of future missions, 243; synthetic aperture radar, 139; Venera 13 and 14, 15; VOIR, 141; Voyager 1 and 2 after Saturn, 252
 Stars: bubbles from dying, 129; colors of, 383, 491, 593; detected in quasars, 567; diameters measured by optical interferometry, 334; first protostar found in Large Magellanic Cloud, 458; Groombridge 1830, 530; HD 15558, 363; late stages of evolution, 449; local system, 574; mass of Crab nebula's progenitor, 15; number of, to 8th magnitude, 54; south circumpolar, 255; spectra of prominent, 311; unstable, 22; Vega, 337; Wolf-Rayet stars in NGC 604, 365
 Sun: corona, 18, 210; November 26, 1981, prominence, 215; shrinking solar diameter? 354; September 11, 1981, sunspot group, 12
 Sundials: analemmas of the nine planets, 237; Australian equatorial dial and bronze sculpture, 459; porcelain dial of the French Revolution, 16
 Telescopes and telescope making: Alvan Clark 48-inch flat, 85, 445; amateur's telescope collection, 401; biscuit cutter from water pipe, 89; cable drive, 199; Christen triplet, 201, 411; Damon patrol camera, 556; designs of large refractors, 302; Dollond refractor, 29; equal-radius Schmidt-Cassegrains, 88; Foucault testing, 519; French stellar interferometer, 334; guiding reticle, 200; Königsgberg heliometer, 302; observing with television camera, 533; pinhole light sources, 89; restoring telescope tubes, 625; setting circles drawn by computer, 411; Smyth's clock drive, 28; Space Telescope, 128; space telescopes of distant future, 338; steel-bell camera drive, 198; tubeless 8-inch reflector, 523; Very Large Array, 342; Wassell's mirror tester of 1882, 522; 9.4-inch Johns Hopkins reflector, 303; 12-inch Polaris Association reflector, 535; 12-inch Brown refractor, 117; 31-cm Begg Cassegrain, 556; 13-inch Lowell refractor, 366; 50-cm Auckland reflector, 557; 20-inch English Schmidt, 208; 24-inch Sproul refractor, 304; 26-inch Naval Observatory refractor, 305; 36-inch Lick refractor, 307, 445; 36½-inch Lick Cassegrain, 447; 40-inch Yerkes, 307; 100-inch Hooker, 124; 3.9-meter Anglo-Australian, 255; 200-inch Hale, 47
 Time: relationship of sidereal to Universal, 569
 Variable stars: Epsilon Aurigae, 460; T Coronae Borealis, 388; FK Comae-type as coalesced binaries, 15; V1057 Cygni and associated nebula, 364; HR Delphini, 364; ultraviolet spectrum of UX Ursae Majoris, 248
 Venus: climate and surface, 134; Venera landings on, 452; VOIR and, 141
 X-ray astronomy: 4U 1915 - 05 as a binary burster, 150; Monogem ring, 145; optical counterparts of 1E 0643.0 - 1648 and 1E 064301 - 1640.8 near Sirius, 456